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PROJECT BOOKLET

MAT2038 Applied Mathematics 20
Module 1

FOR STUDENT USE ONLY

Date Assignment Submitted:

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Student File Number:

Module Number: _____

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Assignment

Grading: _____

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Student's Questions and Comments

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Teacher's Comments

Teacher

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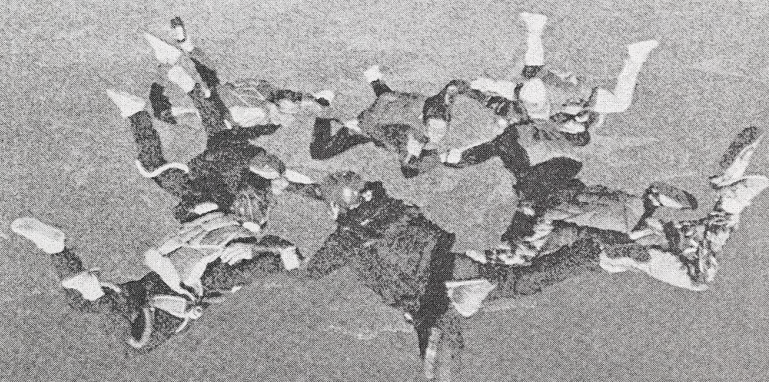
Module

1

Applied *Mathematics 20*

GRAPHS

PROJECT BOOKLET



Learning
Technologies
Branch

Alberta
LEARNING

FOR TEACHER'S USE ONLY

Summary

Total Possible Marks	Your Mark
40	

Teacher's Comments

This document is intended for

Students	✓
Teachers	✓
Administrators	
Parents	
General Public	
Other	

Applied Mathematics 20
Module 1: Graphs
Project Booklet
Learning Technologies Branch
ISBN 0-7741-1893-8

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PROJECT BOOKLET

APPLIED MATHEMATICS 20: MODULE 1

Your mark on this module will be determined by how well you do on the module project in this Project Booklet and the module assignment in the Assignment Booklet.

The value of each part of the module project is stated in the left margin of this booklet. The total value of the module project is 40 marks.

Read all parts of this booklet carefully and record your answers in the appropriate place. Work slowly and carefully. If you are having difficulties, go back and review the appropriate activity in the Student Module Booklet.

Be sure to complete all parts of the project and proofread your responses before submitting this project to your teacher. If you require more room for any response, use your own paper and attach it securely to this booklet.

40

Module Project: Examining Data

Your project for Module 1: Graphs is Examining Data. This project involves searching and locating examples of articles or advertisements with graphs and tables. You will then use these articles to analyse a graph, create a graph, and assess the truthfulness of the presentation of a graph.

Part A: Analyse a Graph

Choose an article from your selected articles that includes a graph. Read the article carefully and complete the following exercises. Attach the article to this Project Booklet and label it Part A.

5

1. Briefly describe the inferences and claims made within the article.

- 3

2. Explain how the data and graph support the claims.
- ---

Part B: Creating a Graph

Choose an article that includes numerical data or a table. Read the article and complete the following exercises. Attach the article to this Project Booklet and label it Part B.

- 5

3. Briefly describe the inferences and claims made within the article.
- ---

- 3

4. Explain how the data supports the inferences and claims made within the article.
- ---

④

5. Create a graph for the given numerical data.

③

6. Explain why you used the type of graph you did to represent the data.

③

7. What advantage is there to presenting data in graphical form?

Part C: Recognizing Misleading Graphs

Choose an article that includes a graph that could be considered misleading. Study the graph and the data carefully, and answer the following exercises. Attach the article to this Project Booklet and label it Part C.

⑤

8. Briefly describe the inference or claim based on the misleading graph.

③

9. What can be done to make the graph more truthful?

④

10. Create a graph that is truthful using the data from the article.

②

11. Why do you think the author of the graph chose to create the graph as they did?

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ASSIGNMENT BOOKLET

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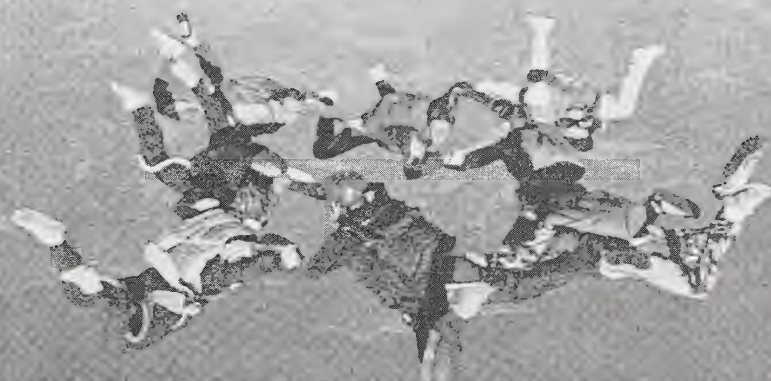
Module

1

Mathematics 20

GRAPHS

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ASSIGNMENT BOOKLET

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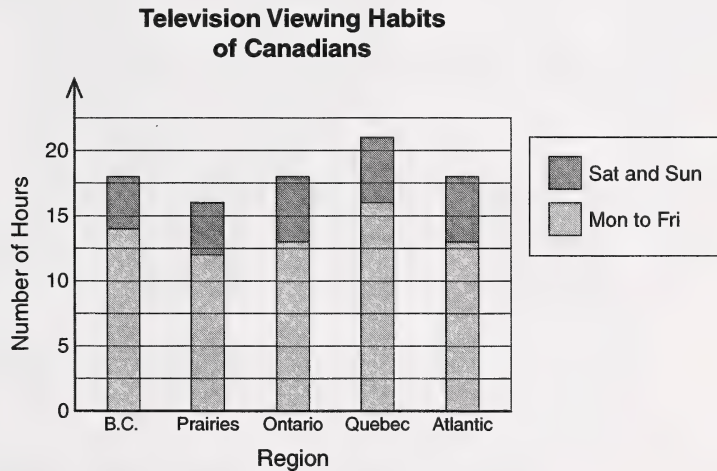
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60

Module Assignment

1. A survey was completed to find the number of hours of television watched by Canadians (as shown in the following graph). Use the graph to answer the exercises that follow.



①

- a. On average, how many hours of television do viewers in B.C. watch Monday to Friday?

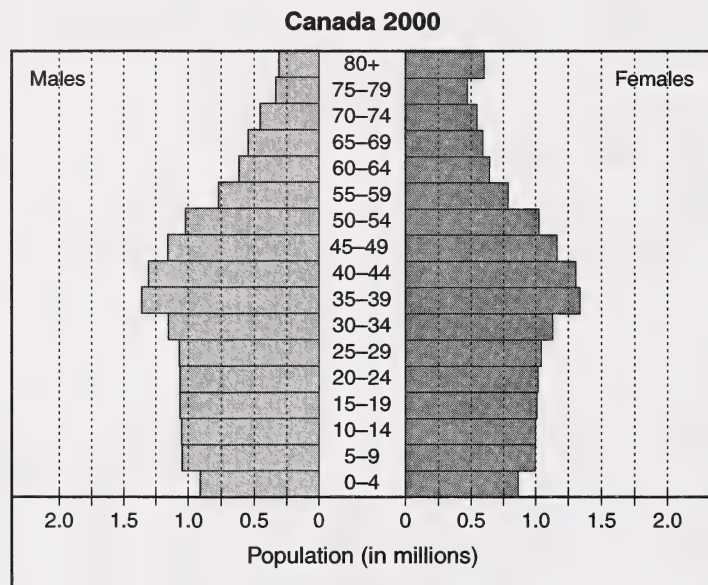
①

- b. On average, how many hours of television do viewers in the Prairies watch Saturday and Sunday?

- ① c. In which region do viewers watch the least number of hours of television for the entire week?

- ① d. Estimate the average number of hours per day that viewers in Quebec watch television.

2. Study the population pyramid of Canada's population in 2000, and answer the exercises that follow.



- ② a. If the total population of Canada in 2000 was approximately 30.8 million, approximately what percent of the population was between 20 and 24? Round your answer to 1 decimal place.

- ② b. What is the ratio of males to females in the 80+ age group? Compare this ratio to the ratio of males to females in the 40 to 44 age group.

- ② c. Estimate the number of people that were 60 and older in 2000.

3. A campground has the following glyphs on a sign next to its entrance.

Glyph A



Glyph B



Glyph C



Glyph D



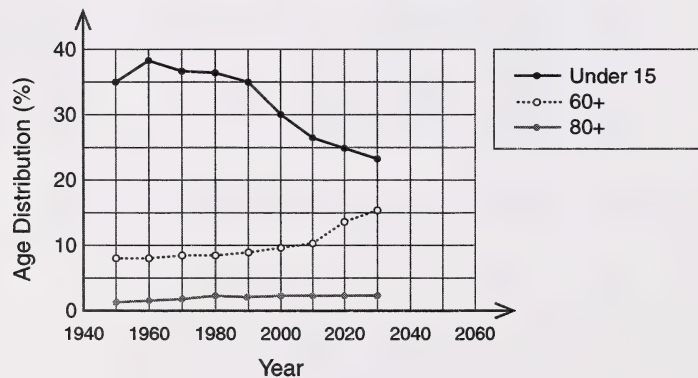
- ④ a. Give an interpretation for each of the four glyphs.

2. b. The owners will be adding trailer and RV parking spaces along with shower facilities next year. Draw glyphs that would clearly illustrate these features.

1. c. Design a glyph to illustrate that open fires are not permitted.

4. Use the graph of Age Distribution of World Population to answer the exercises that follow.

Age Distribution of World Population



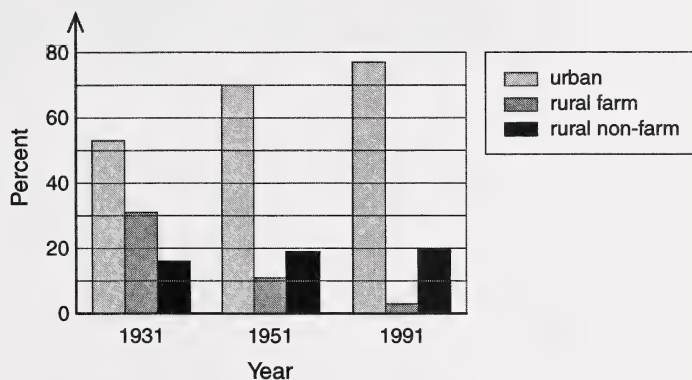
1. a. Use extrapolation to estimate the year when the world population of children under the age of 15 will equal the 60+ age group.

②

- b. Explain why the population of the 60+ age group is predicted to rise significantly from 2010 to 2030.

5. The following graph relates urban and rural populations in Canada over a 60-year period. Use the graph to answer the exercises that follow.

**Urban/Rural Population of Canada
1931–1991**



③

- a. Describe the trends in urban, rural farm, and rural non-farm populations from the graph.

③

- b. Discuss possible reasons for the trends.

- ③ 6. a. Use two vertical scales to graph the data of daily closing figures for the Toronto Stock Exchange (TSE) and the Canadian dollar from January 23, 2001, to January 27, 2001.

Day	TSE	Canadian Dollar (c/US\$)
Jan. 23	9120.95	66.54
Jan. 24	9268.84	66.18
Jan. 25	9306.19	66.10
Jan. 26	9183.35	66.34
Jan. 27	9153.19	66.42

- ② b. Are the sets of data discrete or continuous? Explain.

②

- c. Describe the trends of each graph over the week.

①

- d. What does the graph tell you about both sets of data for the week?

①

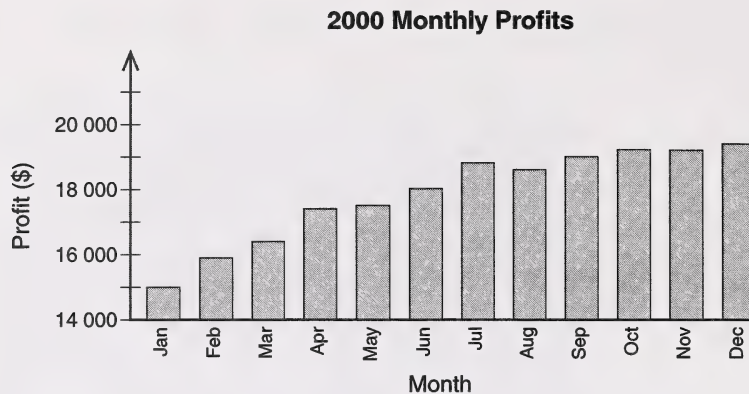
- e. What is an advantage of using two vertical scales with one horizontal scale?

7. A company wanted to make a favourable impression on its shareholders. It makes a presentation by graphing the data as follows.

2000 Monthly Profits

Month	Profit (\$)
January	15 000
February	15 900
March	16 400
April	17 400
May	17 500
June	18 020

July	18 800
August	18 600
September	19 000
October	19 220
November	19 200
December	19 400



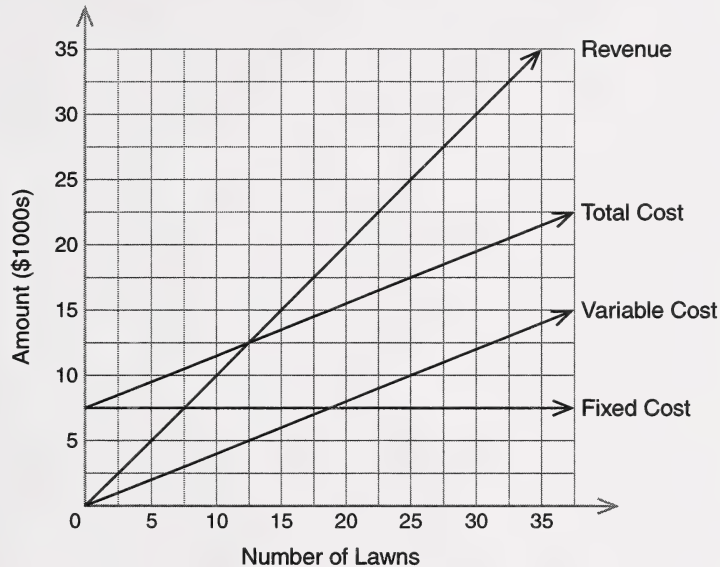
②

- a. How does the presentation of the data make the results appear more favourable?

③

- b. Create a bar graph that is more truthful.

8. A small business maintains lawns, including flowerbeds, during the growing season. The business has fixed costs of \$7500 for equipment, office, and advertising. The business charges \$1000 per lawn for the season and pays its employees \$400 per lawn. The following graph can be used to predict profits and losses.

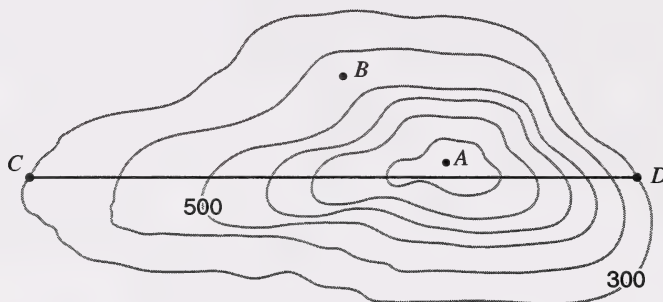


- 2 a. How many lawns does the company have to maintain in order to start making a profit?
-
- 1 b. What is the company's revenue for maintaining 30 lawns?
-
- 2 c. Determine the net profit for 30 lawns.

②

- d. What is the net loss if the company had only 5 lawns to maintain?

9. Use the following contour map to answer the questions that follow. The vertical scale is in metres.



②

- a. What is the height at point A? at point B?

①

- b. What is the contour interval used in the diagram?

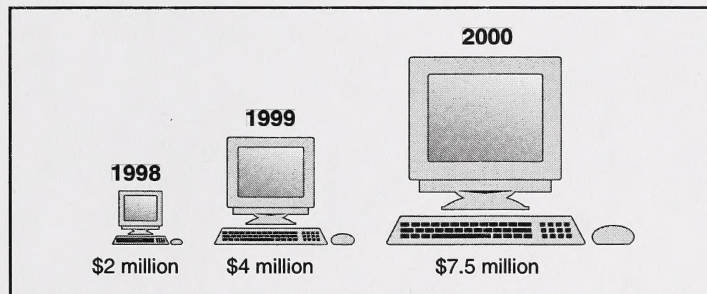
②

- c. Which side of the contour map is steeper? Explain.

3

- d. Complete a profile for line *CD* using the following grid.

10. The following graph illustrates the profits of a computer sales company in three consecutive years.



2

- a. Explain why the picture graph is misleading.

③

- b. Recreate the picture graph so it is not misleading.

